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ABSTRACT

This document is a module designed for use in preservice or inservice teacher education which deals with the rationale and activities necessary for effectively using paraprofessionals in elementary school classrooms. The document consists of a statement of terminal and enabling objectives, pretest, and four selected reading materials on the use of paraprofessionals in the classroom, elements of individualized instruction, and the involvement of parents in early childhood education. (MJB)

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THE EFFECTIVE USE OF PARAPROFESSIONALS IN THE CLASSROOM

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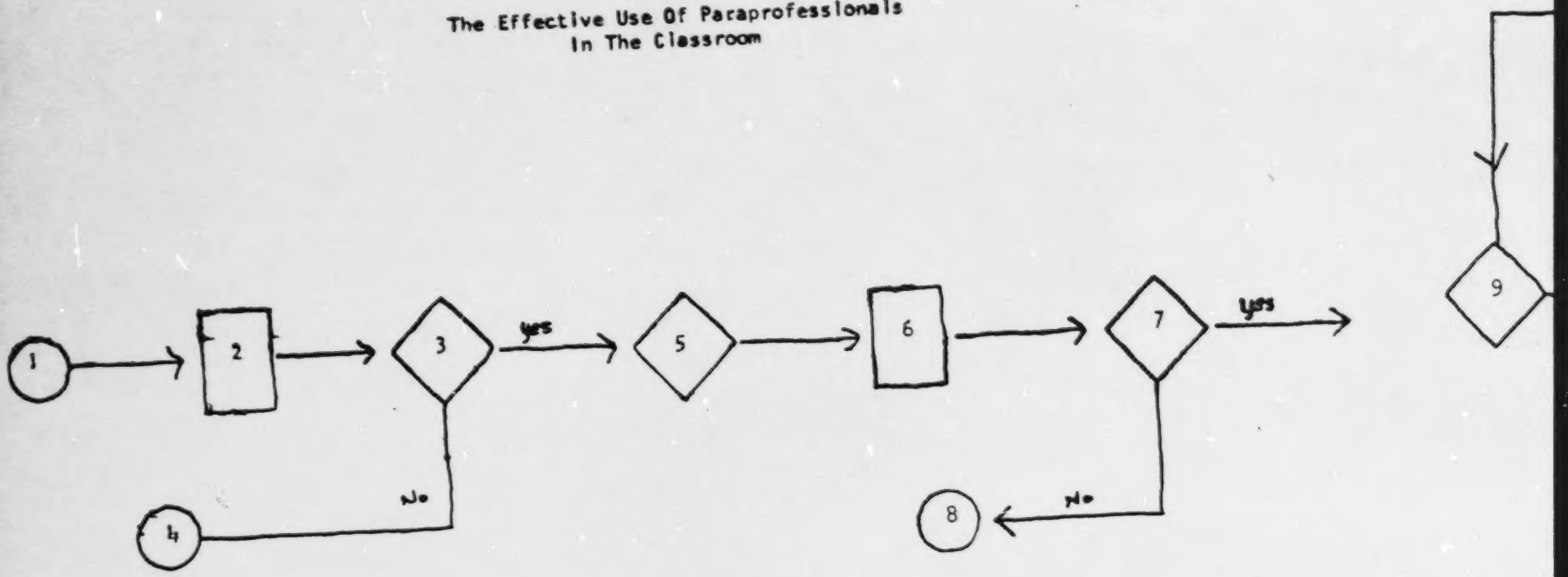
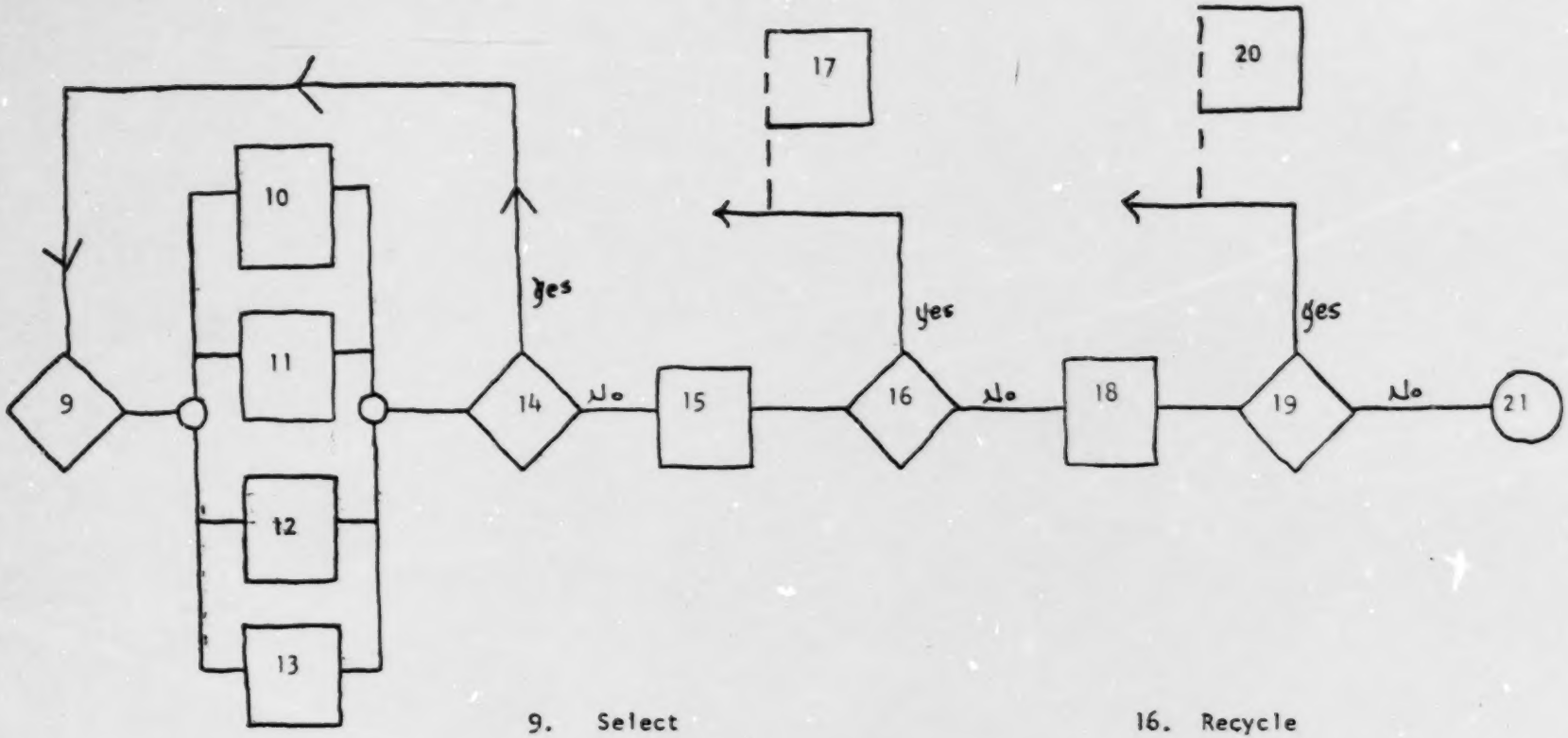
Sequence-Flow Chart

The Effective Use Of Paraprofessionals
In The Classroom



1. Enter
2. Prospectus
3. To Continue
4. Exit
5. Pretest
6. Conference A
7. To Continue
8. Exit



9. Select
10. Video Tape
11. Readings
12. Classroom Visitations
13. Interviews
14. Other Options
15. Conference B.
16. Recycle
17. Back to Conference A
18. Assessment
19. Recycle
20. Back to Conference A
21. Stop

Modulo:

The Effective Use of Paraprofessionals in the Classroom

Objectives:

To present the rationale and activities necessary to utilizing paraprofessionals in elementary school classrooms.

After viewing the video tape and reading its corresponding papers the learner will be able to:

1. identify the categories of The Taxonomy of Classroom Activities
2. list at least five activities contained within each of the categories identified in 1.
3. organize a school day utilizing at least two (2) paraprofessional adults and a teacher.
4. identify five (5) methods of soliciting parent volunteers for the classroom.
5. list ten (10) activities parents could become involved with in the classroom.
6. identify categories and activities within these categories on the Taxonomy of Classroom Activities by use of video tapes of classroom scenes to an accuracy of 90%.

Materials:

The learner is referred to the following for the purpose of fulfilling the expectations of this modulo:

1. "Parents' Involvement in Early Childhood Education" by Leonard Kaplan and Ira J. Gordon.
2. "The Effective Use of Paraprofessionals in the Classroom" by Leonard Kaplan and Vallis Fineberg.
3. "Many names, many sponsorships, but one common element," "Individualized Instruction" by Mildred McQueen.
4. "Elements of Individualized Instruction," by Patrick A. O'Donnel and Charles W. Lavaroni.
5. "The Effective Use of Paraprofessionals in the Classroom," by Leonard Kaplan - Video Tape.

6. Video tapes of classroom scenes available in Bldg. K. reference room.

A variety of other materials dealing with the involvement of paraprofessionals in classrooms and individualizing instruction are available in the library. These may be used to supplement the materials listed in this modulo.

PRETEST

A. Identify the categories contained within the Taxonomy of Classroom Activities

1.0 _____

2.0 _____

3.0 _____

4.0 _____

4.1 _____

4.2 _____

5.0 _____

B. List at least five (5) activities contained within each of the categories identified in A.

1.0 _____

_____

_____

_____

_____

2.0 _____

_____

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_____

3.0 _____

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_____

_____

4.0 _____

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5.0 _____

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_____

C. Organize a school day utilizing at least two (2) paraprofessional adults and a teacher. Use outline form. Some narrative may be employed if used for clarity and amplification.

D. List five (5) methods of soliciting parent volunteers for the classroom.

1. _____

_____

_____

2. _____

_____

_____

3. _____

_____

_____

4. _____

_____

_____

5. _____

_____

_____

E. List ten (10) activities parents could become involved with in the classroom.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

F. View video tapes of classrooms. Identify to an accuracy of 90% or more the categories and activities within these categories on the Taxonomy of Classroom Activities. (See instructor to arrange viewing)

THE EFFECTIVE USE OF PARAPROFESSIONALS IN THE CLASSROOM

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and

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Teacher aides are becoming a common sight in classrooms today. A few years ago only those school districts considered affluent hired aides. Today, they are commonplace. The amount of aide participation varies from state to state and, in some instances, from locality to locality. If one looks around fairly carefully, he finds that teacher aides in the classroom basically get involved in two kinds of activities: The "housekeeping" activities involve the aide in dusting, arranging furniture, baby-sitting, checking thermostats and other necessary but low-level activities. Another activity in which teacher aides are commonly involved is what might be labeled as "clerical." Examples of this exercise are assisting the teacher in making up and running off dittos, collecting milk money, collecting Red Cross money and, in some instances, taking attendance. To be fair, many aides do other things, but those activities that have been reported are fair generalizations of what teacher aides have done. Aides do get involved in instruction here, and there, but not to a large degree in comparison to these other activities.

This writer suggests that educators move beyond the low level and permit these aides to get involved in higher level classroom activities. Our teaching training institutions prepare students to enter the profession and attempt to teach them how to work effectively with children. However, those who work in classrooms recognize that teachers need help from many different sources in order to do the best job possible. It is the teacher's responsibil-

ity as as the person in charge of the classroom to work with and best utilize the talents of the paraprofessional. The question is, "What will I do with them?" "What can they do?"

How much the paraprofessional does in the classroom depends on the ability, interest, and enthusiasm of this individual. A teacher must be careful not to subject the paraprofessional to a situation that she is unprepared to handle. As the teacher and paraprofessional work together, the teacher makes judgments as to when and with what the paraprofessional will become involved.

Classroom activities fall into a hierarchy. Two levels of the hierarchy, housekeeping and clerical activities have been discussed. It should be emphasized that these activities are not reserved for just the paraprofessional. They are done by whomever can do them most easily or efficiently. The idea is to get them done so that the real job of instruction can be accomplished.

The Taxonomy of Classroom Activities (See Appendix A), was developed for the purpose of providing direction to the teacher and paraprofessional. It constitutes a hierarchy and lists activities that can be shared by teachers and paraprofessionals. There are a variety of things that teachers and paraprofessionals can and should do in the classroom. There is very little that cannot be shared. How much sharing takes place depends on the enthusiasm, maturity and ability of the responsibility adults involved in the program.

Level three of the hierchy concerns the role of the paraprofessional in working with materials. The paraprofessional can work as resource person in the classroom for both the children and the

teacher. With assistance and guidance the paraprofessional can locate materials, develop files and set up displays and demonstrations to be used by the teacher for the purpose of instruction. To accomplish these objectives, the teacher will need to take the responsibility of pointing out the importance of materials, sources for finding materials and the effectiveness of various materials used in the teaching-learning process.

A fourth level activity in the hierarchy and the one that demands the greatest amount of time and thought is instruction. We believe that the paraprofessional can be taught how to handle many of the teaching functions in the classroom. She can work with individuals, either those who require remedial work or those who require extra guidance so that they may go beyond the work assigned in class. Paraprofessionals can work with small and large groups of children. However, at the expense of repetition, the selection of activity is determined by the interest and ability of the paraprofessional. For example, should a sixth grade teacher permit the paraprofessional to take responsibility in a discussion of fractions? If in the judgment of the teacher the paraprofessional feels comfortable with this content, then the answer is an emphatic, yes. One of the things that a teacher should do as soon as possible is to look at and get to know the paraprofessional thoroughly in an effort to learn her interests and skills. In a recent conversation with a teacher she pointed out how difficult it was to identify the skills of her paraprofessional. A little probing brought out the fact that the paraprofessional did consider herself to be

an excellent cook. It would seem that any women who knows anything about a kitchen would have to know something about business arithmetic and measurement. She could hardly function in the kitchen without knowledge. How does one get the most out of a dollar in the grocery store? If that isn't adding and subtracting, then I don't know what it would be labeled. How to get the most for one's money is relevant. Why does one buy this can of beans rather than that can of beans? How does one feed his family for a week on ten dollars and still prepare well balanced meals? Not only are these mathematical problems they are also health and nutritional problems. It would seem that anyone who has had these experiences could very well pass them on to children in a real and meaningful way.

The presence of the paraprofessional permits teachers to do some things that they have been saying for years that they want to do. The class size, in most instances, is too large, Teachers have complained, and rightfully, that it is virtually impossible to meet individual needs with so many children. Simple arithmetic would indicate that four hands, if used properly, are better than two hands.

Teachers know that working with paraprofessionals means more work. Not only do teachers have to worry about children but also training paraprofessionals takes time and a great deal of energy. However, it is time and energy well spent. It permits the teacher to put her experience and skills where they are most needed. The teacher can work with the child who needs her com-

petence. Now she can really work with the child who needs individual attention. As much as teachers try to do that in todays' classroom it is virtually impossible because as Billy needs help, so do the others. "I can't spend my whole day with Billy as much as I'd like to, because Betty needs me too." A trained paraprofessional working instructionally can make this possible.

Discipline is part of the instructional process. It should be sufficient to point out that the paraprofessional must command the same respect afforded the teacher. It is therefore essential that all adults in the classroom are in agreement regarding the standards of acceptable behavior and in agreement as to what constitutes misbehavior. Children should expect to be treated fairly and consistently regardless of who is in charge at the moment. As long as the teacher and paraprofessional are in constant communication few problems should arise.

Probably the most difficult aspect of teaching and the highest rung of our hierarchy is evaluation. How does one evaluate fairly? On what basis? Books are available dealing with this topic. It is therefore obvious that this topic will only be touched upon here. The point is that we need to evaluate children. In following the line taken in this paper it is suggested that this activity become a shared responsibility. Any final evaluation of children's progress is the responsibility of the teacher. However, teachers and paraprofessionals both working with children can talk about the progress of the child. The paraprofessional is

well-informed. She works with children daily. This writer has heard paraprofessionals report such comments as, "he seems to be understanding some of these math concepts better this week than he did last week." This is extremely useful information for a teacher to have. This kind of feedback is important from a report card point of view. However, it is more useful on a day-to-day basis. What's happening today? What's happening to this child? Has he grown? Was there any behavioral change? Did you see anything today that you didn't see yesterday? A paraprofessional can be useful in providing feedback to these questions.

There is every reason to believe that paraprofessionals can accomplish many of the classroom functions. This is possible due to the abundance of talents and ever increasing enthusiasm parents are demonstrating toward school. Professional educators have the responsibility of preparing themselves to work effectively with paraprofessionals and to encourage in every way possible their total involvement. In time when society demands the best we have to offer we must call upon all available resources. A large number of sincere, involved people are waiting.

Appendix A

TAXONOMY OF CLASSROOM ACTIVITIES

Teacher-Aide Instructional Activities

1.0 Housekeeping
1. Dusts, cleans, etc
2. Helps children with clothing
3. Arranges furniture
4. Keeps order (babysitting)
5. Posts bullentin board
6. Takes monitoring responsibility (bus, lunch, snacks, lavatory, recess)

2.0 Clerical
1. Collects monies
2. Collects papers
3. Takes attendance
4. Duplicates materials
5. Distributes materials
6. Fills out routine reports
7. Gives tests
8. Maintains inventory
9. Maintains instructional material file
10. Keeps records

3.0 Materials
1. Locates materials
2. Makes bibliography
3. Sets up displays
4. Sets up demonstrations (prepares materials)

4.0 Instruction
4.1 Teaching
1. Tutors individual
2. Organizes play activity
3. Selects materials
4. Develops materials
5. Teaches total group
6. Teaches small group
7. Disciplines
8. Organizes group for instruction
9. Makes judgments

4.2 Planning
10. Plans, organizes meeting
11. Plans bulletin board
12. Plans lesson (small group, large group)

5.0 Evaluation
1. Grades papers
2. Makes anecdotal records
3. Uses Systematic Observation Schedule
4. Organizes case study
5. Evaluates materials
6. Makes test
7. Interprets test results

Developed by: Dr. Robert Soar
Dr. Leonard Kaplan

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PARENTS' INVOLVEMENT IN EARLY CHILDHOOD EDUCATION

By

Leonard Kaplan *
Ira J. Gordon **

In recent years a considerable amount of research information has suggested that a child's achievement in school can be directly related to how the home perceives learning. This suggests that the attitude of the parent toward school will, in a large way, determine the entering behavior of the child. This information is neither startling nor new to those who have worked with children over the years. However, it is startling as we consider that very little has been done with this knowledge at hand. It has been suggested that successes which have occurred to children in school are usually the successes of a devoted teacher, while the failures can be traced to a poor home environment or to a peculiar father. This facetious remark, in too many instances, is a prevailing attitude.

Observation of teacher training institutions, especially in nonmetropolitan areas, suggests that:

1. Teachers are poorly prepared to understand and use the environmental forces which effact children. For years education has

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talked of a closer home-school relationship and yet school people know little about the educational an d social values of the home and ways to work effectively with parents.

2. Teachers are unprepared to work with nonprofessionals. The use of the noncertified personnel in the classroom is becoming more commonplace. Teachers must know how to make effective use of other classroom personnel.

3. Teachers are unprepared to work with parents in a joint effort at modification of the school as an institution in construction ways.

4. Teachers have historically been prepared to look at the method rather than the conceptual development of content. This has lead them to be victims of band-wagon pressures instead of providing them with the intellectual tools for decision-making.

Many psychologists have believed, and continue to believe, that as a child develops he models himself after significant adults in his environment. Many have assumed that the significant adult being modeled is the classroom teacher. Since the teacher is in direct contact with the child, it is safe to assume that the attitude and concerns of the teacher will directly influence the child. However, we know that the first five years of a child's development is crucial in his personality development. We know that within the first five years, much of what the child will accomplish has already been determined. It therefore follows that the child will be modeling a variety of adults, but in large measure he will be modeling the adults

of the home. The school and the home have joint responsibility for the education of the child; and unless this joint responsibility is assumed we will fall short in educating today's young people. The responsibility of working with the home and preparing the home to work cognitively with children is in the school. It must be in the school since expertise is here. This expertise is in the form of knowledge of human growth and development methodology and development of curriculum. The challenge, therefore, that controls the school is not whether we should, but how to involve and make constructive use of parents in the education of their children.

Building upon the work of Ira Gordon at the University of Florida, namely the Infant Stimulation Project and later the Florida Parent Education Program, a Teacher Corps-Follow Through Project has been designed and is now in its first year of operation. Its basic objectives are to prepare teachers to: (1) teach children effectively; (2) think for themselves in curriculum and instructional development; (3) work with parents and other community agencies to strengthen the learning environment of the child; (4) work with paraprofessionals and (5) cooperate competently with parents and others in institutional change.

Major elements of the program are: (1) the training of mothers (two to each classroom) in the role of combined parent educator and teacher auxiliary; (2) training the teacher in the use of paraprofessional personnel; (3) development of materials for family use which take into account not only the school's goals for the child,

but also and equally, the family's expectations, goals, life style and value system; and (4) involvement of the Policy Advisory Committee in all phases of the program.

Both teacher and parent educator are taught procedures for the development of teaching tasks. The parent education activity consists of periodic (preferably once a week) home visits. The major activity in these visits is the demonstration and teaching of the mother in tasks that have been devised in school to increase the child's intellectual competence and personal and social development. A library of activities have been developed which can be used by any Follow Through - Teacher Coprs teacher regardless of grade level when the activity matches the child and home. A learning activity (task) may be used for many children or may fit just a few. These tasks are developed to enhance not only the cognitive or academic development of the child, but also to strengthen the parent-child bond, to involve siblings, both older and younger, in the Follow Through - Teacher Corps child's learning. They are not "homework," but game-type supplements. They are not designed as "remedial work" nor are they to be seen as serving "problem" children. They are for <u>all</u> children in the Follow Through - Teacher Corps classroom. As part of the demonstration in teaching, the parent educator helps the parent understand the purpose of each task, how to perform it and how to estimate the ability of the child to complete the task. But tasks are not a one-way street. The parent educator not only encourages the parents to develop their own adaptations of the material, she also actively solicits from the parents their ideas about

activities which have worked for them, their suggestions for future tasks and their views about schooling. These, in turn are used by the Follow Through - Teacher Corps teachers and parent educators in the creation of new activities with credit given to parent-originators. In this fashion the school is influenced by the home, and the parent is enhanced.

The parent educator also serves as the first line liaison person between the Follow Through - Teacher Corps program and the home. She serves as a referral agent for medical, dental, psychological or social services, by informing the mother of the existence of such services and, depending upon the community, establishing the contact between the home and a representative of these services. This requires that the parent educator understand the nature of other Follow Through and community services in addition to understanding her role in the task area. She also informs the parents about PAC meetings and other school functions and encourages involvement not only in task development, but in the whole range of community-school relationships.

In the school the parent educator serves as a teacher auxiliary implementing instructional activities through working with individuals or small groups on various learning tasks. A basic element in the Florida Program is the recognition of the paraprofessional as a member of the teaching team. Under supervision parent educators perform a wide range of activities in the classroom and are not confined to housekeeping, clerical or child care duties. Basic to the creation of sound home learning tasks is a knowledge of the child and

his behavior in the classroom. By working with the children on school activities the parent educator comes to know them. She can, after planning with the teacher, inform parents about the progress of the child.

The parent educator spends about half her time in home visits; her load including half the families in the class. Her remaining time is spent at school, working in the classroom, planning with the teacher, reporting to the teacher about her visits and participating in inservice education. In several communities organized staff development programs in local institutions of higher education offer the paraprofessional additional opportunities for personal career development.

A key person in the program is the classroom teacher. She supervises the classroom work of the parent educator and assists her in planning and implementing the parent education activities. She, with the assistance of the parent educators, develops and selects the home learning tasks. She briefs the parent educator before the visits, and receives her report after. In order to perform these duties the teacher needs additional planning time, and many of the communities have built such time into their schedules. Further, the teacher receives effective technical help from a second or third adult in the classroom in carrying out the general goal of reaching each child. She finds that there is increased parent understanding and support for her efforts. She also learns ways to work with other adults which increase her professional competence.

Parents are encouraged not only to visit the school and the classroom, but also to take part in working with children in the room. Parents are not seen as observers or bystanders, but as people who can contribute to the education of all children. Thus, in a room the teacher may have several adults carrying out a variety of learning activities. She becomes, then, better able to assess and meet individual needs because she is freed from the tyranny of large class instruction and from the myth that children learn only when the teacher is teaching. She learns through the creation of all home materials ways to reorganize her classroom for individual and small group learning.

How much the paraprofessional does in the classroom depends on the ability, interest and enthusiasm of the paraprofessional. The teacher must be careful not to subject the parent to a situation that she is unprepared to handle. As the teacher and parent work together, the teacher makes judgments regarding when and with what the parent will become involved. The parent can be taught how to handle many of the teaching functions in the classroom. She can work with individuals, either those who require remedial work or those who require extra guidance, so that they may go beyond the work assigned in the class. Parents can work with small and large groups of children; however at the expense of repetition, the selection of activity should and must be determined by the interest and ability of the parent. The teacher is encouraged to get to know the parent thoroughly in an effort to learn his or her interests and skills. In a recent conversation with a teacher, she pointed out how difficult it was to identify the skills of her parents. A little probing brought out the fact that many of the parents

considered themselves to be excellent cooks. It would seem that any woman who knows anything about a kitchen would have to have a basic knowledge of business arithmetic and measurement. She could hardly function in the kitchen without this knowledge. How does one get the most out of a dollar in the grocery store? If one doesn't call that adding and subtracting, then we are hard-put in labeling what it would be. How does one feed the family for a week on ten dollars? Can one purchase enough food and yet prepare well balanced meals? Not only are these mathematical problems, they are also health and nutritional problems. It would seem that anyone who has had these experiences could very well pass them on to children in a real and meaningful way.

The presence of the parent permits teachers to do some things that they have been wanting to do for years. The class size, in most instances, is too large. Teachers have complained, and rightfully, that it is virtually impossible to meet individual needs with so many children. Simple arithmetic would indicate that four hands, if used properly, are better than two hands. Teachers know that working with paraprofessionals means more work. Not only do teachers have to worry about children but also training parents takes time and a great deal of energy. However, there is little doubt that this energy will produce a more efficient and productive classroom. It permits the teacher to put her experience and skills where they are most needed. The teacher can work with the child who needs her competence. She can work with the child who needs individual attention. As much as teachers try to do this in today's classrooms is virtually impossible because as Billy needs help so do others.

"I can't spend my whole day with Billy as much as I'd like to, because Betty needs me too." A trained parent, working instructionally, can make this possible.

In Summary

The University of Florida, the local education agency, and the parents are seen as a partnership team in which information flows back and forth, with the main objective of serving to enhance the total development of the child. We see ourselves attempting to facilitate teachers and parent educators in translating their content goals into effective learning materials to be used at home and in school to achieve what it is the parents and school wish to achieve.

The program sponsored, through continuous contact, strives to keep all elements of the program on target, and to facilitate the development of the program. Our role is more than consulting services; it provides direction, support, and information, as well as some elements of the evaluation program. Within the framework of the program, there is considerable flexibility to meet community needs.

Our goal and the goal of our program is to enhance child development through mobilizing - the home, the classroom, comprehensive services, and University personnel. In the process, all are changed and all benefit.

Many Names, Many Sponsorships, But One Common Element

INDIVIDUALIZED INSTRUCTION

Mildred McQueen
In SRA Research Report

Educators have long talked about the ideal school program as one in which the student moves along at his own pace of learning in a curriculum designed to meet his needs. The great interest today in this kind of program - known as individualized instruction - is indicated by the fact that thousands of people visit such schools as Lincoln School at Staples, Minnesota, one of many schools across the United States where this kind of education is being tried.

Catherine Watson, writing in American Education about the Lincoln School, reports that one of the teachers' biggest jobs is to motivate pupils, to make them curious about learning by creating an atmosphere that makes them want to try something different. This is partly done, she reports, by keeping up warm relationships with pupils. Teachers also seek new ways to make learning exciting. English, reading, and writing are known as "communications," math as "calculations," and science as investigations," to make them sound a little more interesting. The second-floor hallway has been turned into a 2,000-volume library in order to expose all pupils in the school to books constantly.

Lincoln pupils are at "levels," rather than in grades, and the distinction is more than a matter of words. Levels are not barriers that pupils cannot cross, but simply a convenient starting point. Children are taken where they are, not where they should be. Sometimes they are groups solely on the basis of interests instead of age or achievement or aptitude. Each child has some say in choosing activities in academic subjects, but the degree of structure in his program depends on his maturity. He has his own folder that tells him when to study, how much time to put in, and what his special tasks and assignments are - for each subject. Youngsters are never pushed or pressured, and no marks are given.

But how does the teacher in individualized instruction determine the needs of each child and set up a custom-made program to meet those needs? First, he decides what skills he wants the child to learn; he tests to find out which of these the child already has. Then the teacher supplies the pupil material that will ensure his learning the skills that need to be worked on. Frank Zeitz, in School and Community, says that at a given grade level the range in ability equals the number of students in that grade. Individualized learning systems have been developed that make it possible to select for each of these learners the curriculum and the manner in which it is presented. Materials are arranged so the pupil can move from the simple to the complex. When the teacher is sure the pupil has mastered skill A, the pupil moves on to skill B, not held back by slower pupils or pushed beyond his capacity by those of greater ability.

In reading about individualized instruction, one encounters many names: the Continuous Progress Plan, Contracts, UNIPACS, IPI, Project PLAN, Duluth, Melbourne, Cypress, and NOVA. Some are names given to programs to describe the concept; others are names of people or places associated with programs. Still other descriptors are the Multiunit Plan, the Tutorial Community, the Quintile Plan, DeKalb, Haxtun, Hagerman, Meadow Moor, Pendleton, and Temple City. But as Jack Eding points out in Audiovisual Instruction, all these have one thing in common: The traditional form of instruction in which all pupils are taught the same skill or concept simultaneously is eliminated, and pupils progress at a self-determined pace, often on self-selected subjects, to achieve self-evaluated and self-satisfying goals.

FACTOR CRITERIONS

Consideration of a number of variables is involved in development of individualized instruction, according to an Educational Leadership article by Gail Baker and Isadore Goldberg, and any system of instruction is individualized only to the extent that certain criterions for these factors are met.

Student features. Each student's abilities and needs must be considered to the greatest extent possible in planning his overall program and each part of it. Student characteristics play a major role in selection of objectives, sequence of study, and selection of materials and methods.

Teacher features. In general, the teacher is concerned with reinforcing the behaviors appropriate for each student. But teachers serve in various roles - as members of the curriculum development and evaluation team, as diagnosticians and evaluators, and as counselors. The teacher spends more time answering questions of individual pupils and working with small groups than lecturing to a class.

Behavioral objectives. Clearly defined sequences of progressive objectives in various subject matters are set up as guides for planning a student's program of study. Each objective is spelled out in terms of observable competence in either a specific behavior or a specific product of one.

Multiple activities. The teacher encourages students to help decide on materials to use and procedures to follow in order to meet their objectives. The student moves freely in the school, talks with others, and does whatever is necessary with the teacher's approval, to meet his objectives - working by himself, with a small group, or with his teachers.

Study requirements. The time spent by a student in a specific subject area or any component of it is determined by his performance, not by a time allotment. Such flexibility allows the slower student extra time for review and the faster student a chance to study his regular course in greater depth or to explore new interest.

Student evaluation. A student's performance is measured against his own objectives rather than by the performance of other students. Pretests and posttests accompany each part of his learning program. Self-evaluation tests are used, too, to give him reinforcement as well as information about his progress.

The nation's largest individualized learning project is Individually Prescribed Instruction (IPI), developed at the University of Pittsburgh in cooperation with a USOE regional laboratory, and first put into action near Pittsburgh in 1964. By 1967 more than a thousand school systems had asked that IPI be set up in their schools, and by the fall of 1970 IPI was serving 75,000 students in 264 schools.

Project PLAN (Program for Learning in Accordance with Needs), the nation's second most extensive effort to individualize classroom instruction, has been operating in selected schools from coast to coast since 1967. While the federally sponsored IPI has been developing much of its own curriculum, PLAN - created by Westinghouse Learning Corporation and American Institutes for Research - uses available commercial materials and adjusts them to the individualized program. In PLAN, computers act as a teacher's aide by monitoring and making information available on the daily progress of each pupil. Project PLAN offers the first systematic individualized program available to school districts for grades 1-12 in language arts, reading, social studies, mathematics, and science. It also includes a guidance program. PLAN officials believe the program raises the achievement of students, though specific data is not yet available. They feel they are producing a more resourceful, self-motivated person. Cost is estimated to be an extra $100 per pupil per year.

EFFECTS

Edling reports that the various efforts in individualized instruction have had impressive effects - not always shown in standardized achievement tests (though results in this area are sometimes startling) but rather in changed behavior of learners and teachers. Some effects are these: increased interest in school activities; disappearance of most traditional discipline problems; major reduction in dropout and truancy rate, with attendance greatly improved; increasing number of high scores on specific achievement measures; harder work by teachers, but with a feeling of satisfaction that efforts are helping students. Another benefit foreseen by some educators as individualized instruction increases is that the need for compensatory education for disadvantaged youngsters will be eliminated. Tests showed that disadvantaged children working in IPI, for example, had changed from feeling hostile toward school to being delighted with it, and so it holds great promise for helping them. An additional advantage is that parents could take youngsters on vacations at any time of year without disrupting their learning.

When the teacher no longer has to serve as an information giver, he can devote his talents and energy to more important duties as learning counselor, diagnostician, and prescriber of learning. This suggests a new focus for preservice and inservice teacher education.

PROBLEMS, LIMITATIONS

Not everyone is enthusiastic about programs of individualized instruction as they presently operate. One limitation is the vast quantity of materials needed for teachers to draw on to fill the various learning needs of students. Materials are costly and difficult to develop, but as more materials are developed commercially, this problem should be solved. An American Teacher representative, have observed activities at an IPI demonstration school, expresses fear that the teacher may become merely a writer of prescriptions rather than one who works closely with students. He is also concerned about the small amount of group work, and expresses doubts that IPI can be applied to science and social studies as well as it can to the rote learning of spelling and math.

However, comments and surveys of participants indicate that they are enthusiastic about individualized programs. For instance, the Pennsylvania School Journal reports that in the closing week of school, 93 percent of pupils at a Harrisburg elementary school said they would like to do individualized mathematics again the next year, 91 percent that they like this way of working by themselves, and 70 percent that they liked math (their only individualized subject so far) more than other subjects. Of the teachers, 92 percent said they liked IPI better than regular math. When asked how much the teacher helped them, 92 percent of pupils said "enough," and 8 percent "not enough."

No one doubts the need for further assessemnt of individualized learning program. Proponents of the concept admit that more research is needed. Expanded work on a variety of programs will lead not only to clarification of the teacher's role, but also to improved techniques and materials.

Elements of Individualized Instruction

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Most people recognize the inescapable individual differences among human beings, and many accept the notion that this individuality should be nurtured. But few agree on how the schools should go about the task of fostering individual differences.

It is our hypothesis that the degree of individualization of instruction in a given school or classroom will be an outcome of the degree to which provision is made in the curriculum for each of five elements:

1. Purposeful pacing of learning for each student. In many classrooms, modifications in rate of progress reflecting an awareness that each student learns at a different rate - are only distinguishable characteristics separating individualized instruction from traditional instruction. Weekly spelling lists become daily spelling lists for some; reading textbooks are "covered" in six or three or fourteen months instead of nine. Although these attempts may help by subverting calcified and fossilized attitudes, they do not operationally meet the condition of purposeful pacing because they focus only on temporal dimensions. Purposeful pacing occurs as the student moves from asking "How fast?" to questions such as "When should I...?" and "Where should I...?" Modifications in rate are indicative of individual differences in speed of production, but tend to ignore individual differences in optimal scheduling. Fixation on speed can hinder adjustments of rate to the nature of the content and task.

Purposeful pacing recognizes that different students can work in different content areas during the same time period. If a teacher is to increase the level of such pacing, he must modify the program to allow students to progress at their own rates, and to participate in the identification of optimum scheduling of learning experiences.

2. Alternative means of learning. The recognition that all children did not learn to read well with a "decoding" approach to instruction resulted in a headlong plunge into "meaning" approaches. More recently, increased awareness that some children may need systematic perceptual training before being exposed to decoding experiences has been translated, for all pupils, into paper-and-pencil prescriptions involving the reproduction of geometric figures. While alternative means may have been a part of some existing programs, they have been applied in an all-or-none fashion.

All the possible permutations in receptive and expressive modalities provide the grid of learning-means-alternatives which must be available in

an individualized classroom. The teacher will provide variations such as the following, the first in each pair representing input (reception) and the second, output (expression): auditory (listening) - motor (writing); kinesthetic (moving) - vocal (explaining); visual (watching) - motor (drawing); tactual (touching) - vocal (discussion). The possible combinations of input and output should indicate the potential breadth of means which could be provided. Textbooks, films, charts, records, tapes, resource people, worksheets, and chalkboards all have a place, along with discussions, plays, experience charts, calisthenics, and choral reading. The availability of these makes possible the match between the alternative means and the learning needs of each student.

3. A variety of self-evaluation processes. Assessment and evaluation have been considered the prerogative of the teacher - something he did to a pupil. Students received ample feedback on quantity of mistakes but rarely any data on quality of responses. Where teachers have attempted to promote pupil self-evaluation, they have tended to focus on pupil self-correction of materials. While this may be a necessary modification, it should not be the limit of self-evaluation.

If a long-range objective is the development of autonomous and independent learners, then experiences which bear at least a logical relationship to this outcome should be planned. Effective teachers will insure that pupils have opportunity to examine their own experiences with learning tasks, and pupils will be given assistance in identifying and evaluating their own learning styles.

Certain minimum structural elements are required for more effective pupil self-evaluation. Teacher and pupil purposes should be translated into performance terms, with both teacher and pupil having a clear understanding of desired and expected outcomes. Also, criterion-referenced tests should be constructed to provide students a variety of modes of feedback on performances.

4. Decision-making activities. In many school settings, the student can make one of two decisions: to do what the teacher tells him, or to not do it. He may believe the teacher or not believe the teacher. Increasing numbers of young people are selecting negative options, and often without being exposed to other alternatives. The student becomes a mere reactor because he fails to recognize his potential involvement in the decision-making process, and thus is deprived of a valuable personal confrontation with choice and responsibility.

If we seek to develop free and responsible citizens, we need to help every student learn how to engage in conscious decision making. Choice without consideration of alternatives and conscious awareness of relationships between behavior and consequences is not decision making, and represents neither independence nor responsibility.

The teacher must provide a cognitive and affective environment which supports and encourages conscious decision making. He must

help the student identify alternative goals, alternative means of achieving the goals, and alternative means of measuring achievement of the goals, as well as the consequences of any possible alternatives.

The individualized classroom offers many opportunities for student decision making: what materials to use, how much time is needed for an activity, how to demonstrate understanding. Students can learn to view interpersonal behavior as a decision-making process, and can participate in decisions on school rules.

5. Purposive interaction. Groups have often been formed in the classroom as an administrative convenience. The group provides a means of control. In the individualized classroom, however, groups form around the goals and objectives of a particular learning activity. Skill development groups form because individuals evidence common deficiencies in particular skills. Groups form so ideas can be compared, contrasted, analyzed, or explained. Since conceptualization is mediated through language, the teacher forms groups to promote language development processes. In short, purposive interaction is grouping in response to the learning needs of individual students, not to the organizational needs of the teacher.

The size, composition, and purposes of the group must change continuously. The possibilities for subgroups formed for specific purposes are endless, and may include any combinations from among pupils, teacher, and ancillary adults.

The five conditions described - purposeful pacing, alternative means for learning, self-evaluation, decision-making activities, and purposive interaction - are interrelated and interdependent. Individualization of instruction has no well-defined boundaries. Ultimately, the limits are established by the potential or constraints which emerge from the individual teacher and group of pupils. In addition, individualization of instruction is a cyclical process. Each condition influences and is influenced by the other.